



*From “Wetland Program Development Grants (WPDGs) Case Studies”  
Published October, 2006*

**Grand Portage Band of Minnesota:** *Using insects to develop an innovative approach to assessing wetland function and value*

**Introduction**

The Grand Portage Reservation is located in the extreme northeastern tip of Minnesota on the shore of Lake Superior. The Reservation is bounded on the north by the Canadian province of Ontario. The western boundary is State and Federal Land. Lake Superior forms the rocky, wave-swept boundary on the south and the east. According to the “Circle of Flight Tribal Wetland and Waterfowl Enhancement Initiative,” it was estimated that approximately one-fifth of the 56,000-acre Reservation consists of wetlands.

Over the past several years, the Grand Portage Environmental Department has been developing a wetlands protection and monitoring program utilizing WPDGs. Their first project was entitled “Development of a Wetland Protection and Conservation Ordinance” and coincided with the development of the 1995 Grand Portage Land Use Ordinance. These ordinances were the first steps to prevent future destruction of wetlands and ensure that wetlands within the boundaries of the Reservation would continue to function in their natural condition. Grand Portage received several subsequent grants that addressed other areas of their wetland program, including the development of bioassessment procedures that include indices of biological integrity and nutrient criteria. All projects have had a common goal of including protective criteria for wetlands within the Grand Portage Water Quality Standards.

**WPDG Activity**

In 2000, Grand Portage received WPDG funding to work on the Grand Portage Wetlands Bioassessments and Biocriteria Project, which gathered baseline data necessary to develop wetland indexes of biotic integrity for shallow water and depressional wetlands. The Grand Portage Forested Wetland Bioassessment Project, funded in 2003, focused on developing wetland indices of biological integrity for forested wetlands within the Reservation. Both of the bioassessment projects above included macroinvertebrates as measures of biological integrity.

Macroinvertebrates residing in wetlands are the result of complex interrelated chemical, physical and biological processes that act over time and on multiple scales. By directly measuring the condition of the macroinvertebrate community, Grand Portage is able to assess wetland condition. To conduct the assessment, samples were collected in June of each year with assistance from students in the Grand Portage Mentorship Program. This assistance helped the wetlands program and the participating students, as they learned where and how to collect and identify macroinvertebrates. They also learned the importance and function of insects that should be present in healthy wetlands. Grand

Portage created a reference collection of macroinvertebrates that is still used extensively by department staff in the field and as an educational tool for students and community members learning about wetland macroinvertebrates.

### **Current Work and Future Plans**

In 2005, Grand Portage was awarded a WPDG to develop wetland nutrient criteria. This project will address three primary objectives: 1) identification of current seasonal nutrient-cycling trends; 2) development of seasonal nutrient criteria ranges appropriate for wetlands in the Reservation; and 3) development of numeric wetland criteria for depressional wetlands. Vegetative and periphyton surveys, as well as water and sediment chemistry analysis, will aid in meeting these objectives.

Please visit the following webpage (<http://www.kstrom.net/isk/maps/mn/grandport.htm>) for more information on the Grand Portage Band of Minnesota tribal history.

Success Story Contributor: Andy Schmidt (Grand Portage Reservation)

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